Session Two – AMPI – An Australasian Marine Pilotage Update

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AUSTRALASIAN MARINE PILOTS INSTITUTE

Welcome Ricky Rouse and Captain Adam Roberts from Australasian Marine Pilots Institute (AMPI)

An Australasian Marine Pilotage Update - 2024

Captain Adam Roberts, VP IMPA & VP AMPI
Captain Ricky Rouse, Deputy President AMPI

Captain Ricky Rouse
Deputy President, AMPI

AUSTRALASIAN MARINE PILOTS INSTITUTE

Who are AMPI?

- **Professional Association representing over 250 pilots across Australia and Papua New Guinea.**
- **Continuous Professional Development Program**
- **Member of IMPA**
- **Mentoring Program**
- **Code of Best Practice, Position Papers and Standards**
- **Regional conferences - 1 per annum.**
- **Asia Pacific Conferences – 4 yearly**
- **Close relationship with NZMPA & UKMPA**

Technology

ISPO Code – Version 13
6.3.6 The pilot organization establishes proficiency training not only to keep abreast of future changes due to technological developments, but also to update the knowledge of maritime pilots. To ensure the continued proficiency of maritime pilots, the maritime pilot organization sees to it:

That all maritime pilots under its management continue to maintain their required level of competency in compliance with the organization's ISPO management system;

That relevant programs in compliance with rules and regulations support the updating of knowledge and skills of maritime pilots;

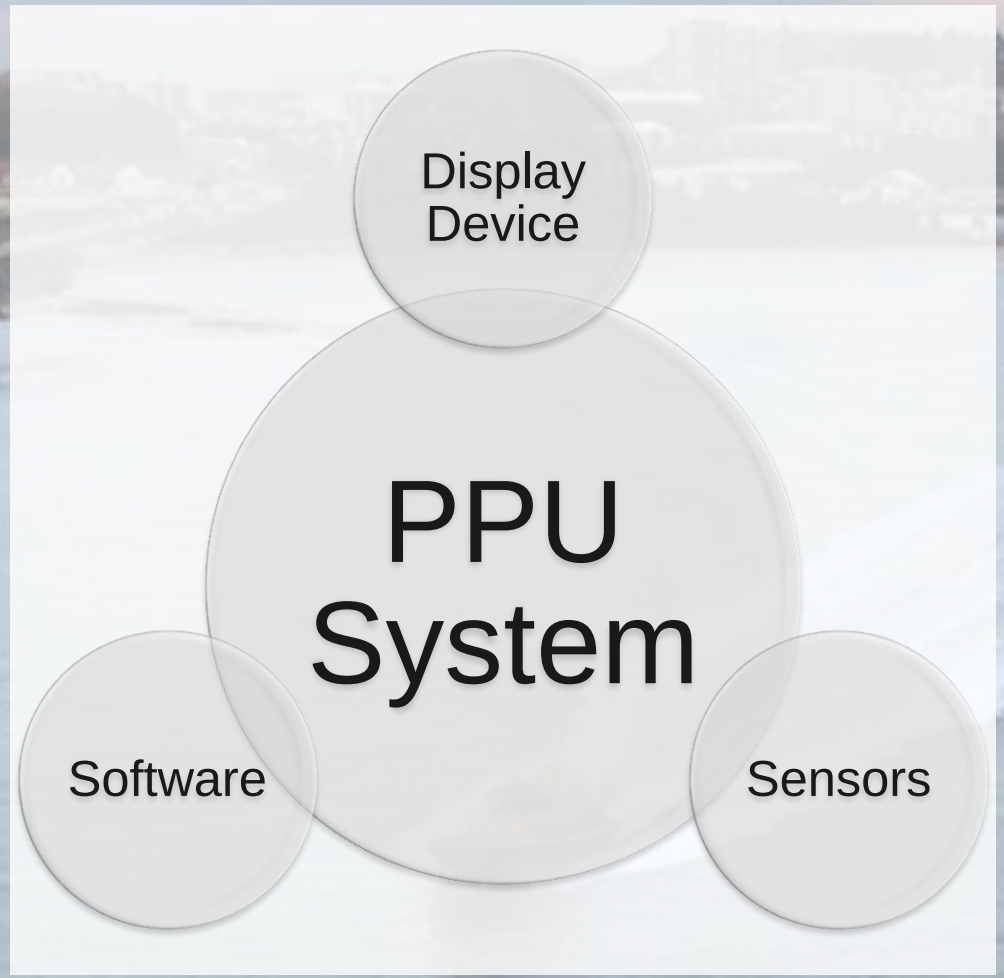
That a maximum absence period is determined per designated area in which a maritime pilot performs pilotage services;

That refresher programs must be in place in the event that the absence has exceeded the maximum period.

7.5.2
As technological innovations will embrace PPU technology with new functionalities and implications, care must be given that relevant industry standards are taken into account and are complied with. It is of great importance that pilot organizations recognize that PPU systems should only be used as an aid to the maritime pilot and should not lead to a weakening of the traditional skills of the maritime pilots or to paying little attention to common practices. Attention must be given to this possible innovation in the training program for maritime pilots.

- **Portable Pilot Units**
- **Standard Routes**
- **Simulation Standards**
- **Pilotage Data Monitoring**
- **Remote Pilotage & Autonomy**

PPU Code of Good Practice



AMPI

PPU Code Of Good Practice

for the implementation and use of Portable Piloting Units

The identification of PPU classes has been based on four categories

- Very high accuracy independent heading berthing systems - Class A
- High accuracy dependent heading general piloting systems - Class B
- Ship dependent navigation systems - Class C
- Specialised PPU systems* - Class S

4

Edition September 2020

Approved by the Executive

World Diana and Rosco Poplar

Grounding of *World Diana*

Port of Bunbury, Western Australia on 22 April 2023

ATSB Transport Safety Report
Marine Occurrence Investigation (Short)
MO-2023-001
Final – 10 July 2024

Figure 5: Portable pilot unit display at 0641

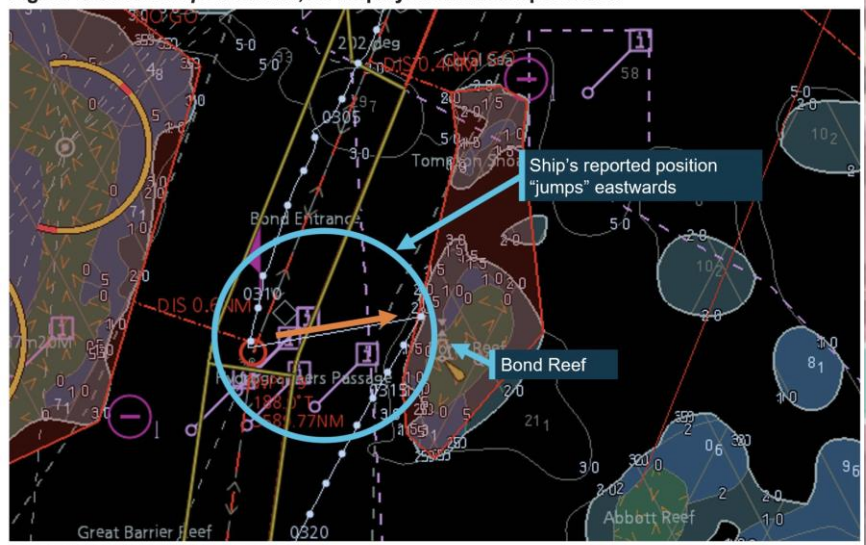
Image source: Southern Port Authority, annotated by the ATSB

Near grounding of *Rosco Poplar*

Bond Reef, Hydrographers Passage, Queensland on 4 May 2022

ATSB Transport Safety Report
Marine Occurrence Investigation (Defined)
MO-2022-005
Final report – 26 July 2024

Figure 5: *Rosco Poplar's* track, as displayed on the ship's ECDIS



Source: RP ECDIS, annotated by ATSB

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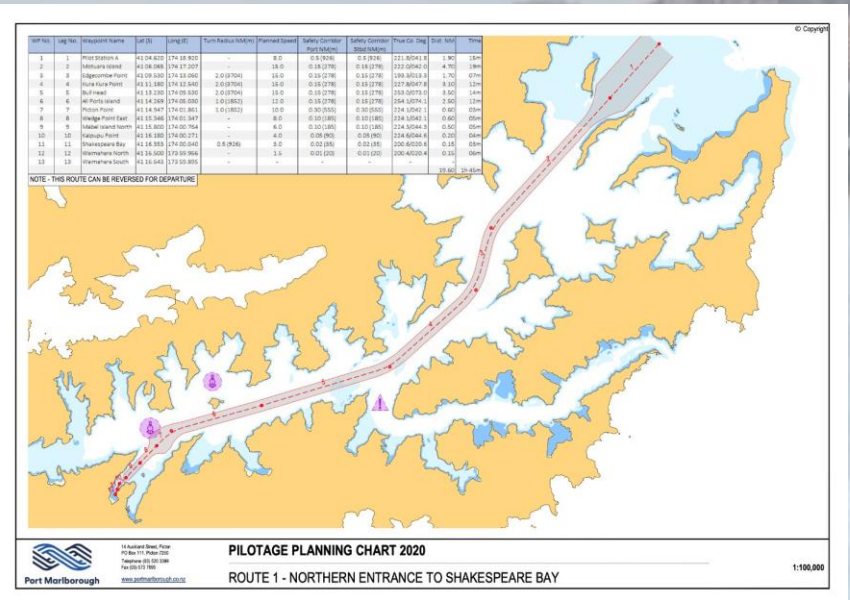
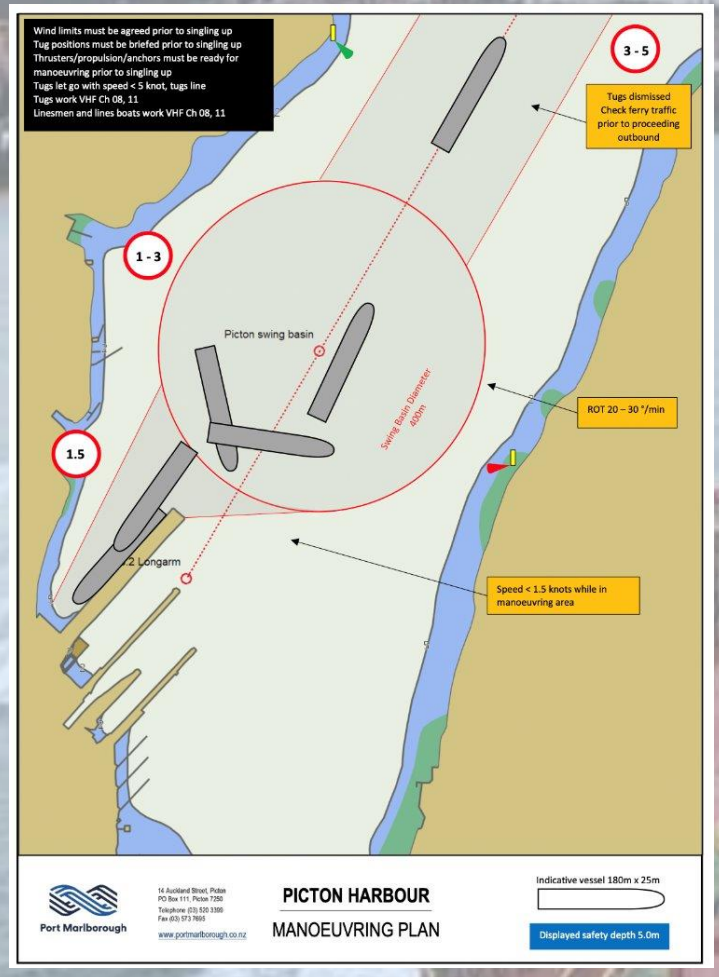
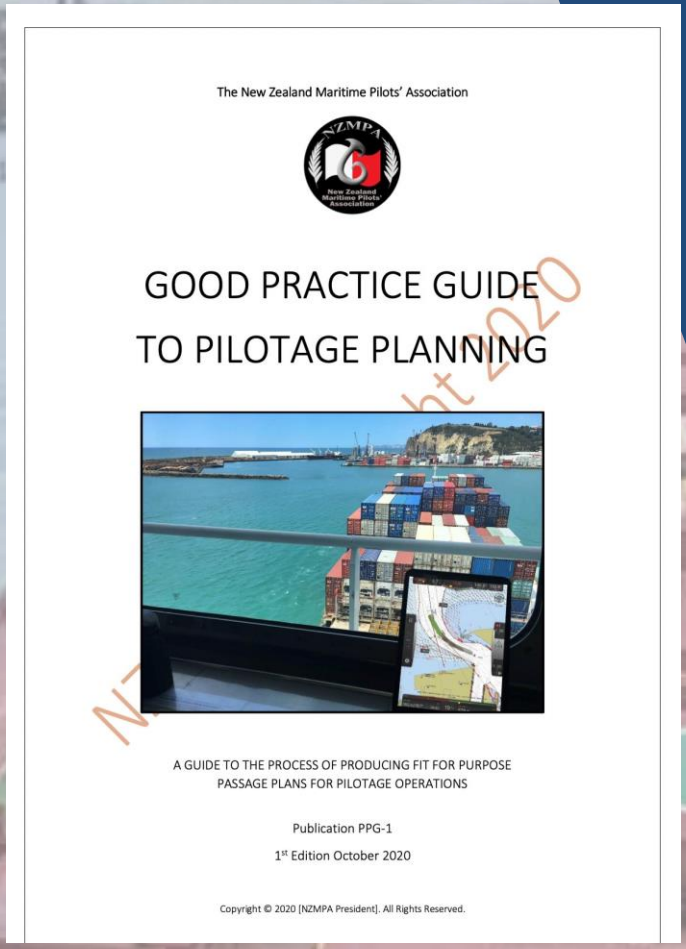
Standard Routes







Simulation Standards

05-2024 Use of Simulators in Marine Pilot Training

1. Preamble

a) This position paper is for the attention of pilotage regulators, port authorities, pilotage service providers, marine pilots and maritime colleges/simulator operators.

b) The use of marine simulators for pilotage training and port development is a complex topic, and this position paper should be read in conjunction with Appendix 1 – Technical Detail below.

c) In Australia, as it is worldwide, ship sizes have increased putting stress on multiple layers of Government to facilitate larger ship sizes using existing port infrastructure. Needing to minimise, or avoid, large capital outlays, marine simulation is increasingly being utilised to inform decisions around port development.

d) In Australia the supply of new pilotage entrant applicants with Master Unlimited Certificates of Competency (CoC) and command time has become increasingly restricted due to the contraction of the Australian Bluewater fleet. Statistics provided by the Australian Maritime Safety Authority show a continuous decline in the issue of STCW II/2 Master Unlimited Certificates of Competency. [1]

e) Pilotage organisations, Port Authorities, State and Federal Governments are identifying opportunities to build resilience into the pilotage task by examining alternative training pathways.

f) Concurrently, active competition and private investment have increasingly entered the Australian marine pilotage space. Financial metrics sit alongside safety metrics as requirements in developing a sustainable business.

g) Training costs and pathways to marine pilotage via "traditional" methods are being challenged. Widening the pool of workforce participants and reducing on water training hours are seen as ways of driving down training and associated costs. Marine simulation is being utilised as a tool to facilitate both.

h) Improper use of marine simulators has the potential to place marine pilots in situations where:

i) Pilotage tasks being undertaken are unacceptably high up the risk curve. They are possible; however repeatability is compromised and may lead to undesired outcomes.

j) Pilots may be licensed to perform pilotage tasks they have conducted via simulation, without the necessary on water experience to complete the task in a safe and efficient manner.

k) Skills which would be learnt early within a structured on-water training program may be omitted or replaced (not supplemented) in a simulated environment using a single ship model, leading to a misleading understanding that the skillset has been learnt.

1. Position

a) The use of simulators is optimal for non-technical skills training. These skills are the cognitive and social skills that complement technical skills and are more easily replicated in a simulator environment.

b) The use of simulators for technical skill training, whilst still replicable, can be limited due to the difficulty in accurate replication of the wide range of on-water forces and hydrodynamic effects within a computer model.

c) Skills obtained using simulators must be verified through other means such as on water mentoring, in addition to check and assessment pilotages to ensure that simulator training is appropriate and effective. Simulation training should be led by a complete training needs analysis which covers the required outcomes of the simulator training and the method of transferring skills to the trainee pilots. The training needs analysis should lead to the development of a simulator training plan.

d) Adoption of training systems based wholly on marine simulation are not recommended due to the limited ability of marine simulators to reproduce the variability of real-world response from ship models and the inherent limitations imposed in adapting port models with limited and/or costly datasets.

e) That all training must be conducted on an appropriate simulator which meets the inherent requirements for the specific training outcomes of the training.

f) The simulator models (ship and port) should be verified by a suitably licensed pilot(s) to verify model validity.

g) The majority of marine pilot training should be undertaken on a DNV Class A, or equivalent standard simulator.

h) Simulation which takes place on a marine simulator other than a DNV Class A or equivalent shall include a simulation training plan when being submitted for Continuous Professional Development (CPD) points. This training plan should demonstrate clear skill outcomes along with methods for determining an individual's assessment of those skills, in addition to an explanation of relevance of the outcomes to the role of marine pilot.

i) The operators Safety Management System should include methods of validating training outcomes and improving simulator training structure

j) When incorporating simulation into safety management systems, the following should be considered:

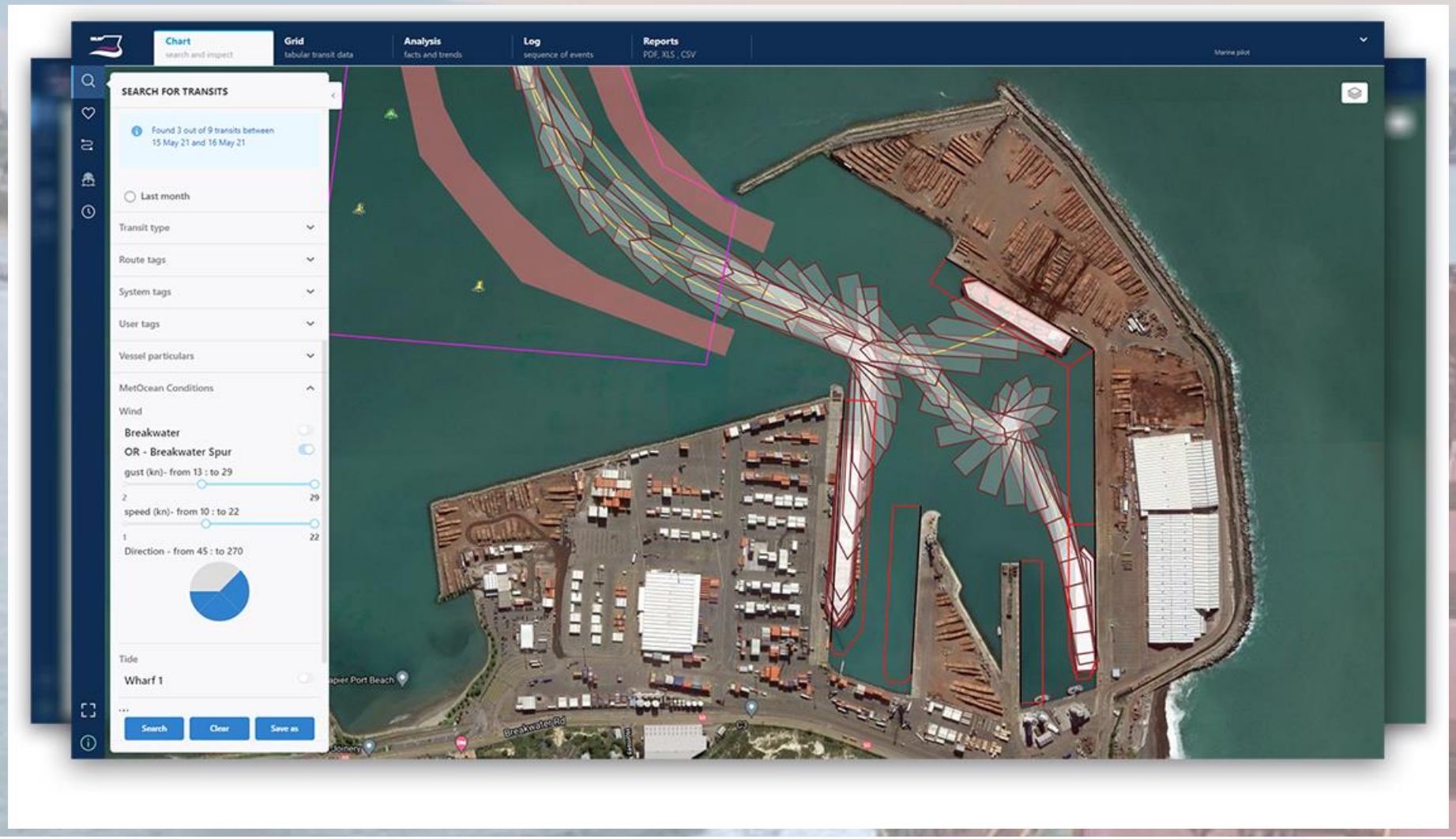
   i) voyage data using data analytical systems

   ii) incident investigation data and outcomes,

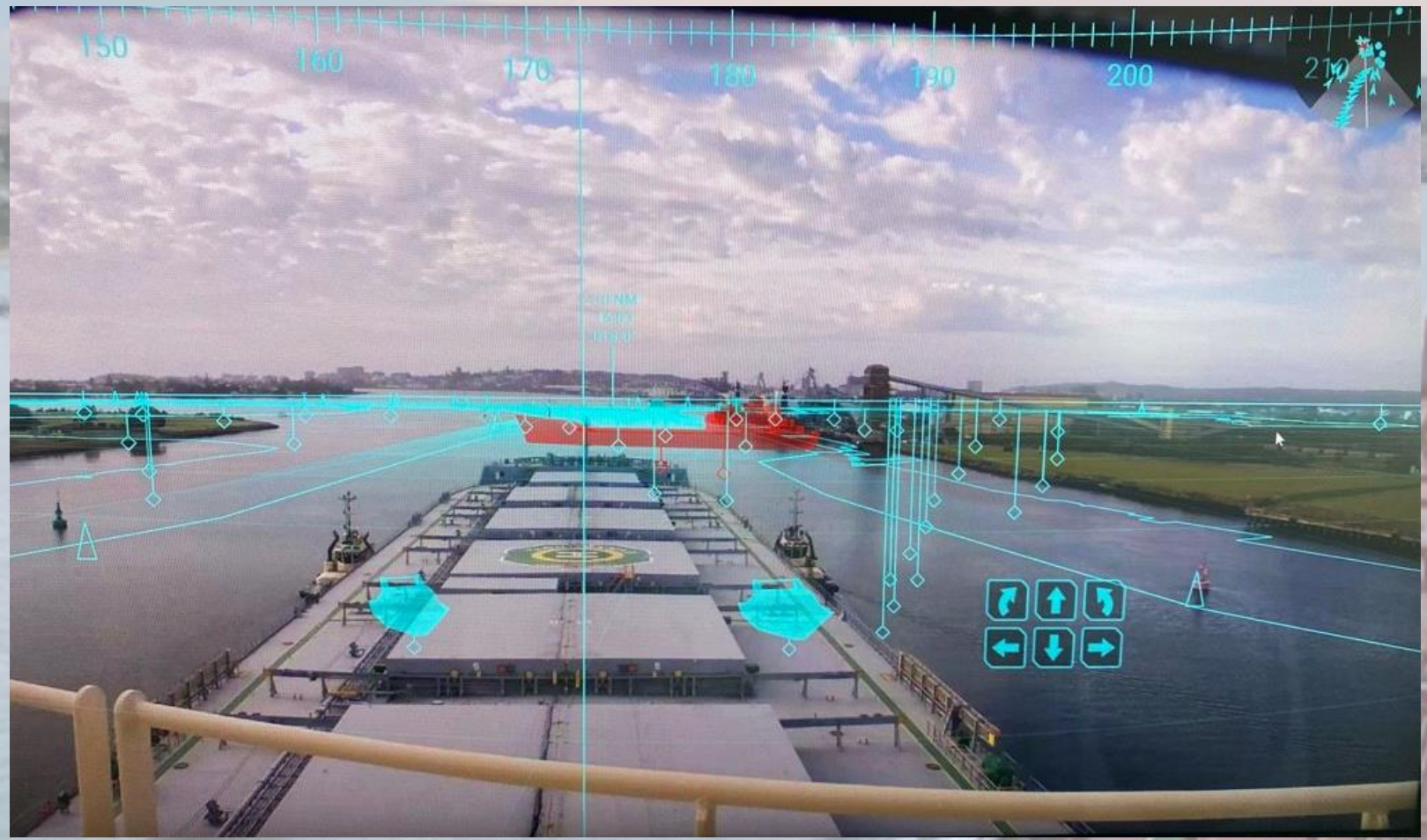
   iii) Safety committee and management feedback loops,

l) Incorporating all the above into the simulation training plan with clear outcomes to improve on water pilotage safety and incident response.

Pilotage Data Monitoring



Autonomy & Remote Pilotage



Regulation & Standards

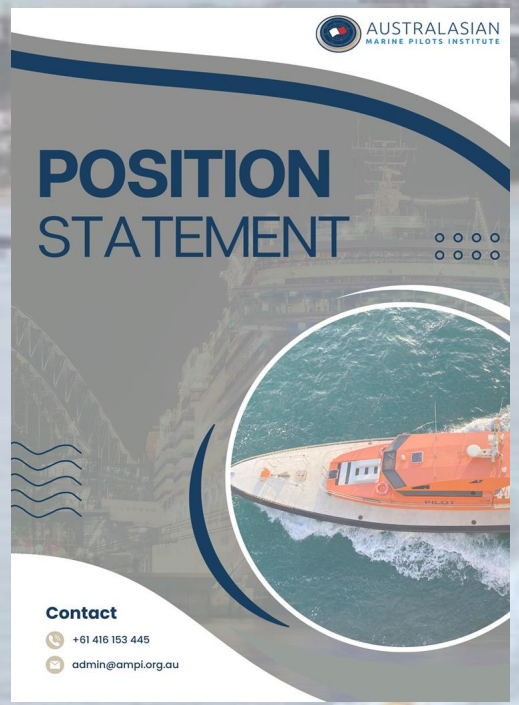
Regulation & Standards

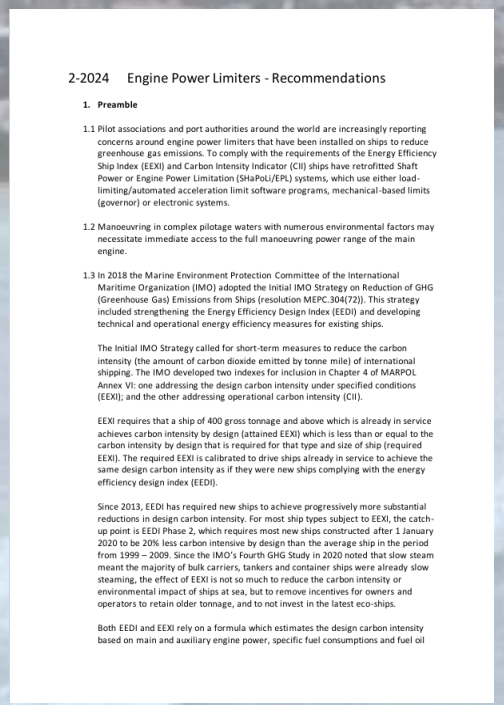
- Federal Regulation (AMSA & WHS Act)
- State Regulation (New South Wales, Queensland, Victoria, Tasmania, South Australia, Western Australia, Northern Territory)
- Port Authorities
- AMPI, IMPA, Ports Australia, ARCSOPT

Regulation & Standards

- Reviews across Victoria, New South Wales, Queensland, Tasmania and AMSA
- Engine Power Limiters
- Ethical Use of Data
- Alternative Pathways for Marine Pilotage
- Pilot Ladders

2/2024 Engine Power Limiters





2-2024 Engine Power Limiters - Recommendations

1. Preamble

1.1 Pilot associations and port authorities around the world are increasingly reporting concerns around engine power limiters that have been installed on ships to reduce greenhouse gas emissions. To comply with the requirements of the Energy Efficiency Ship Index (EEXI) and Carbon Intensity Indicator (CII) ships have retrofitted Shaft Power or Engine Power Limitation (SHaPoLi/EPL) systems, which use either load-limiting/automated acceleration limit software programs, mechanical-based limits (governor) or electronic systems.

1.2 Manoeuvring in complex pilotage waters with numerous environmental factors may necessitate immediate access to the full manoeuvring power range of the main engine.

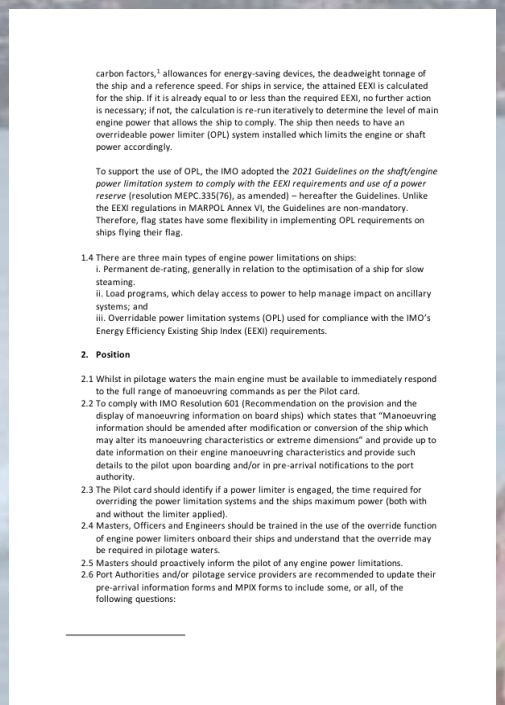
1.3 In 2018 the Marine Environment Protection Committee of the International Maritime Organization (IMO) adopted the Initial IMO Strategy on Reduction of GHG (Greenhouse Gas) Emissions from Ships (resolution MEPC.304(72)). This strategy included strengthening the Energy Efficiency Design Index (EEDI) and developing technical and operational energy efficiency measures for existing ships.

The Initial IMO Strategy called for short-term measures to reduce the carbon intensity (the amount of carbon dioxide emitted by tonne mile) of international shipping. The IMO developed two indexes for inclusion in Chapter 4 of MARPOL Annex VI: one addressing the design carbon intensity under specified conditions (EEXI); and the other addressing operational carbon intensity (CII).

EEXI requires that a ship of 400 gross tonnage and above which is already in service achieves carbon intensity by design (attained EEXI) which is less than or equal to the carbon intensity by design that is required for that type and size of ship (required EEXI). The required EEXI is calibrated to drive ships already in service to achieve the same design carbon intensity as if they were new ships complying with the energy efficiency design index (EEDI).

Since 2013, EEDI has required new ships to achieve progressively more substantial reductions in design carbon intensity. For most ship types subject to EEXI, the catch-up point is EEDI Phase 2, which requires most new ships constructed after 1 January 2020 to be 20% less carbon intensive by design than the average ship in the period from 1999 – 2009. Since the IMO's Fourth GHG Study in 2020 noted that slow steam meant the majority of bulk carriers, tankers and container ships were already slow steaming, the effect of EEXI is not so much to reduce the carbon intensity or environmental impact of ships at sea, but to remove incentives for owners and operators to retain older tonnage, and to not invest in the latest eco-ships.

Both EEDI and EEXI rely on a formula which estimates the design carbon intensity based on main and auxiliary engine power, specific fuel consumptions and fuel oil



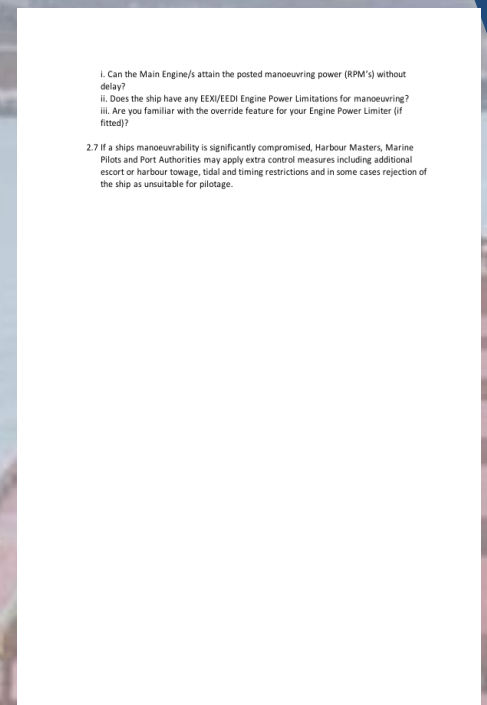
carbon factors,[1] allowances for energy-saving devices, the deadweight tonnage of the ship and a reference speed. For ships in service, the attained EEXI is calculated for the ship. If it is already equal to or less than the required EEXI, no further action is necessary; if not, the calculation is re-run iteratively to determine the level of main engine power that allows the ship to comply. The ship then needs to have an overrideable power limiter (OPL) system installed which limits the engine or shaft power accordingly.

To support the use of OPL, the IMO adopted the *2021 Guidelines on the shaft/engine power limitation system to comply with the EEXI requirements and use of a power reserve* (resolution MEPC.335(76), as amended) – hereafter the Guidelines. Unlike the EEXI regulations in MARPOL Annex VI, the Guidelines are non-mandatory. Therefore, flag states have some flexibility in implementing OPL requirements on ships flying their flag.

1.4 There are three main types of engine power limitations on ships:
i. Permanent de-rating, generally in relation to the optimisation of a ship for slow steaming.
ii. Load programs, which delay access to power to help manage impact on ancillary systems; and
iii. Overridable power limitation systems (OPL) used for compliance with the IMO's Energy Efficiency Existing Ship Index (EEXI) requirements.

2. Position

2.1 Whilst in pilotage waters the main engine must be available to immediately respond to the full range of manoeuvring commands as per the Pilot card.
2.2 To comply with IMO Resolution 601 (Recommendation on the provision and the display of manoeuvring information on board ships) which states that "Manoeuvring information should be amended after modification or conversion of the ship which may alter its manoeuvring characteristics or extreme dimensions" and provide up to date information on their engine manoeuvring characteristics and provide such details to the pilot upon boarding and/or in pre-arrival notifications to the port authority.
2.3 The Pilot card should identify if a power limiter is engaged, the time required for overriding the power limitation systems and the ships maximum power (both with and without the limiter applied).
2.4 Masters, Officers and Engineers should be trained in the use of the override function of engine power limiters onboard their ships and understand that the override may be required in pilotage waters.
2.5 Masters should proactively inform the pilot of any engine power limitations.
2.6 Port Authorities and/or pilotage service providers are recommended to update their pre-arrival information forms and MPIX forms to include some, or all, of the following questions:



i. Can the Main Engine/s attain the posted manoeuvring power (RPM's) without delay?
ii. Does the ship have any EEXI/EEDI Engine Power Limitations for manoeuvring?
iii. Are you familiar with the override feature for your Engine Power Limiter (if fitted)?

2.7 If a ships manoeuvrability is significantly compromised, Harbour Masters, Marine Pilots and Port Authorities may apply extra control measures including additional escort or harbour towage, tidal and timing restrictions and in some cases rejection of the ship as unsuitable for pilotage.

THE CRITICAL BALANCE: Safety and Sustainability in Pilotage Areas - *By Nic Gardner and Matthew Williams*

On the 19th of November 2016, the bulk carrier Nenita boarded a pilot, weighed anchor and headed out. As they rounded a bend in the river at full ahead, the engine revs dropped from 90 rpm to 48 and continued falling. At 25 rpm, the ship lost steerage. 14 minutes after the trouble started, Nenita ran aground.

In Nenita's case, the problem was a combination of a cracked cylinder cooling jacket and an automatic load program; however, at a more immediate level, the problem was insufficient engine power to control the ship in the prevailing conditions at the time it was needed.

Few mariners would argue against the fact that sufficient engine power to control a ship is essential for safety. In strong winds and currents, narrow channels, or close quarters, insufficient power can only lead to accidents. In considering power problems on ships, there are three main types:

1. Permanent de-rating, generally in relation to the optimisation of a ship for slow steaming;
2. Load programs, which delay access to power to help manage the impact on ancillary systems; and
3. Overridable power limitation systems (OPL) used for compliance with the IMO's Energy Efficiency Existing Ship Index (EEXI) requirements.

While permanent de-rating and load programs have advantages and disadvantages and can pose their own challenges, this article focuses solely on OPL systems used to enable a ship to comply with EEXI.

On the 1st of September 2023, Houston Pilots sent out a notice regarding delays in the ability to override engine power limitation (EPL) and shaft power limitation (ShaPoLi) devices, or inability to override these devices, noting, "In some cases, these limiters may reduce ship manoeuverability in a confined channel...to an unacceptable level." Under the Houston Pilots Navigation Safety Guidelines, the Master or OOW must be able to immediately override these devices from the bridge; ships where this is impossible will be subject to transit risk mitigations, such as daylight restrictions, additional pilotage, and tugs. Regardless of whether this notice results from problems already encountered, precautions like these will only become more common.

What are the EEXI regulations?

In 2018 the Marine Environment Protection Committee of the International Maritime Organization (IMO) adopted the Initial IMO Strategy on Reduction of GHG Emissions from Ships (resolution MEPC.304(72)). This strategy included strengthening the Energy Efficiency Design Index (EEDI), and developing technical and operational energy efficiency measures for existing ships.

The Initial IMO Strategy called for short-term measures to reduce the carbon intensity (the amount of carbon dioxide emitted by tonne mile) of international shipping. The IMO developed two indexes for inclusion in Chapter 4 of MARPOL Annex VI: one addressing the design carbon intensity under specified conditions (EEXI); and the other addressing operational carbon intensity (CII).

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Since 2013, EEDI has required new ships to achieve progressively more substantial reductions in design carbon intensity. For most ship types subject to EEXI, the catch-up point is EEDI Phase 2, which requires most new ships constructed after 1 January 2020 to be 20% less carbon intensive by design than the average ship in the period from 1999 – 2009. Since the IMO's Fourth GHG Study in 2020 noted that slow steam meant the majority of bulk carriers, tankers, and container ships were already slow-steaming, the effect of EEXI is not so much to reduce the carbon intensity or environmental impact of ships at sea, but to remove incentives for owners and operators to retain older tonnage, and to not invest in the latest eco-ships.

Both EEDI and EEXI rely on a formula which estimates the design carbon intensity based on main and auxiliary engine power, specific fuel consumptions and fuel oil carbon factors, allowances for energy-saving devices, the deadweight tonnage of the ship and a reference speed. For ships in service, the attained EEXI is calculated for the ship. If it is already equal to or less than the required EEXI, no further action is necessary; if not, the calculation is re-run iteratively to determine the level of main engine power that allows the ship to comply. The ship then needs to have an overrideable power limiter (OPL) system installed which limits the engine or shaft power accordingly.

To support the use of OPL, the IMO adopted the 2021 Guidelines on the shaft/engine power limitation system to comply with the EEXI requirements and use of a power reserve (resolution MEPC.335(76), as amended) – hereafter the Guidelines. Unlike the EEXI regulations in MARPOL Annex VI, the Guidelines are non-mandatory. Therefore, flag states have some flexibility in implementing OPL requirements on ships flying their flag.

Carbon Intensity Indicator (CII) is the colloquial term for the operational carbon intensity reduction requirement. This relies on data about fuel consumption, cargo carried and distance travelled to calculate an estimate of the carbon intensity of a ship in operation. This is more complex than EEXI and does not directly drive the use of overridable power limitations so is not discussed further in this article. Nevertheless, in terms of impact on the operation of ships, CII is expected to have a much more significant effect on the operation of ship than EEXI between now and 2030.

What are engine and shaft power limiters?

The EEXI regulations are goal-based: they regulate outcomes, and simply state that the attained EEXI of a ship shall be less than or equal to the required EEXI of that ship. In the short time between the regulations' entry into force in November 2022, and the first surveys verifying compliance, engine and shaft power limitation was the most cost-effective and simplest option. Unlike other energy saving devices which benefit EEDI/EEXI performance, OPL is not invasive, is low cost and can be delivered to ships quickly.

OPL systems addressed in the Guidelines are EPL and ShaPoLi. Generally, EPL limits main engine power by controlling the fuel index, either with a mechanical stop, or by adjusting the engine control system in combination. In contrast, ShaPoli uses sensors and an electronic control unit to limit the power transmitted by the shaft to the propeller.
Both systems are used to limit power to a level at which the ship's attained EEXI equals the ship's required EEXI.

In normal conditions, most ships operate well below 100% MCR, and in fact at eco-speeds below the percentage of MCR at which a power limit might be set. However, there are circumstances where power demand can and does approach 100% MCR: strong winds or currents, narrow channels, to avoid a collision or grounding, when manoeuvering in harbour, or when involved in a SAR incident. For ships with OPL systems, this is where override functions come in.

What are override functions?

The 2021 Guidelines provide for EPL and ShaPoLi systems incorporating an override. In exceptional circumstances, the override function allows the Bridge Team to access the reserve of power above the pre-defined engine power limit in order to handle emergency situations requiring the use of additional power (power reserve). In an ideal world, ships with overridable power limitation would carry two sets of manoeuvring charts/posters on the bridge: one showing the characteristics when the engine or shaft is limited, and one for when it is not. Unfortunately, this is not required, and therefore is rarely the case.

The 2021 Guidelines state that overridable ShaPoLi and EPL, "... can only be overridden by the ship's master or [OOW] for the purpose of securing the safety of a ship or saving life at sea, consistent with regulation 3.1 of MARPOL Annex VI." It goes on to specify a subset of scenarios that would be covered by regulation 3.1: adverse weather, ice-infested waters, search and rescue operations, avoidance of pirates, and engine maintenance. Notably, the 2021 Guidelines do not explicitly list close-quarters manoeuvring or berthing as a valid reason, even if the use of the power reserve would could be entirely consistent with securing the safety of the ship. Furthermore, the 2021 Guidelines are ambiguous on permitting pre-emptive override of the limit as a precaution, even though it is recognised in the reporting provisions of the 2021 Guidelines that the power limit may be overridden but the power reserve not used. More significantly, the 2021 Guidelines do not require that the system be capable of being overridden immediately or from the bridge. From the perspective of safety, this is a glaring omission because the result is an inevitable delay in the availability of the reserve of power if it is needed.

Is delayed access to full engine power really a problem?

Even if a ship has sufficient main engine power, if the power is not available when it's needed, it may as well not exist. According to the European Maritime Safety Agency, the main events resulting in damage to ships in 2022 were "loss of control - loss of propulsion power." Australia had similar issues: in 2022, of the 347 occurrence types related to ship control and navigation, 82 (23.6%) were associated with ship handling/loss of control and 40 (11.5%) with berthing or unberthing. While the hazard of loss of propulsion power is not the same as the hazard of insufficient propulsion power at the moment that you need it, there are times when insufficient power at a critical point during manoeuvring presents the same risk, and would be likely to lead to similar outcomes.

Would access to immediate OPL on the bridge solve the problem?

There is no doubt that requiring immediate access to the power reserve, or explicitly allowing pre-emptive unlimiting would reduce the risk of a ship having insufficient main engine power at a time when it needs it. However, technical arrangements are not the whole story. Access to an immediate override will not change the human factors. Even if the bridge team can—technically—override the EPL or ShaPoLi system, they may still be unable or unwilling to do so, regardless of what the onboard management manual for the OPL states.

While there are not yet any official reports, pilots share anecdotes of Masters and Bridge Teams not knowing how to override the EPL or ShaPoLi systems, or not realising they are allowed to override it. In the case of electronically controlled engines and ShaPoLi where a password is required to access the power reserve, at times the only way to get the password is to contact the designated person ashore (DPA), with all the delays that entails.

Has this happened before?

EPL isn't the first regulatory change that has increased the risk of propulsion power issues. While EPL is a recent threat with no officially reported incidents-yet-we can look at existing technology for some idea of what to expect.

The transition to low-sulphur fuel oil under IMO 2020 regulations led to an increasing number of P&I claims. These related to main engine-failure related incidents in sulphur emission control areas (SECAs), and warnings that main engines may not attain the expected speed when using low-sulphur fuel oil. Out-of-control ships damaged berths, locks, bridges, other ships, and more, while pilots in ECAs and the US Coast Guard reported a marked increase in incidents after implementing fuel grade changes.
While total loss of propulsion poses obvious problems, the case of the Nenita demonstrates that inadequate power can also lead to serious incidents. Engine power management systems (aka load programs) have nothing to do with EEXI and have been around for have been around for several decades. They optimise fuel efficiency and manage ancillary systems by delaying access to MCR, which can at times adversely affect the ship's operational flexibility in a similar way to OPL.

The interplay of low-sulphur fuel oil, and load programs and EPL and ShaPoLi introduces novel challenges. These systems, designed to optimise fuel consumption and reduce emissions, must now also account for the critical need for sufficient power in demanding navigational situations. The balancing act between environmental concerns and navigational safety is more precarious than ever, with the risk of underpowered ships in critical moments posing a significant threat.

What next?

As with everything at sea, the devil is in the details. Crew training, reasonable procedures that limit on-board administration, a clear understanding of who on board has the authority to make decisions about overriding OPL, and companies trusting their Masters and Bridge Teams would go some way towards managing the non-technical issues.

Although the EEXI regulations and OPL are considered an integral part of a more sustainable maritime industry, they create significant challenges for ship manoeuvrability and safety, particularly in pilotage areas. The upcoming IMO review by January 1, 2026, is an opportunity to reassess these regulations and ensure environmental goals do not compromise navigational safety; however, certain changes should be made far sooner.

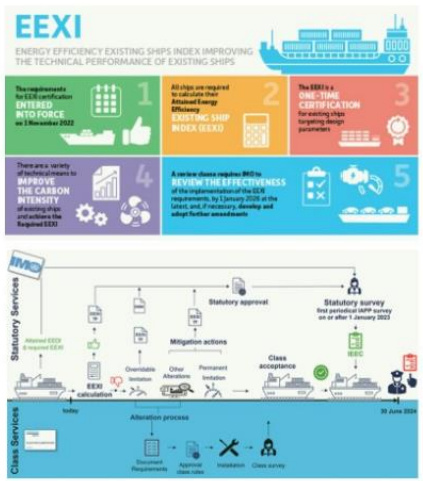
In a submission to MEPC 81, the ICS, IMPA and IHMA proposed a series of changes to the regulations that include:

- making the reserve power immediately available in situations which may endanger the safe navigation of the ship;
- allowing the precautionary un-limiting of the EPL/ShaPoLi in advance of situations that may endanger the safe navigation of the ship; and
- requiring the pilot card, wheelhouse poster and manoeuvring booklet to show the manoeuvring characteristics both when the ship has full shaft and engine power available, and when it is limited.

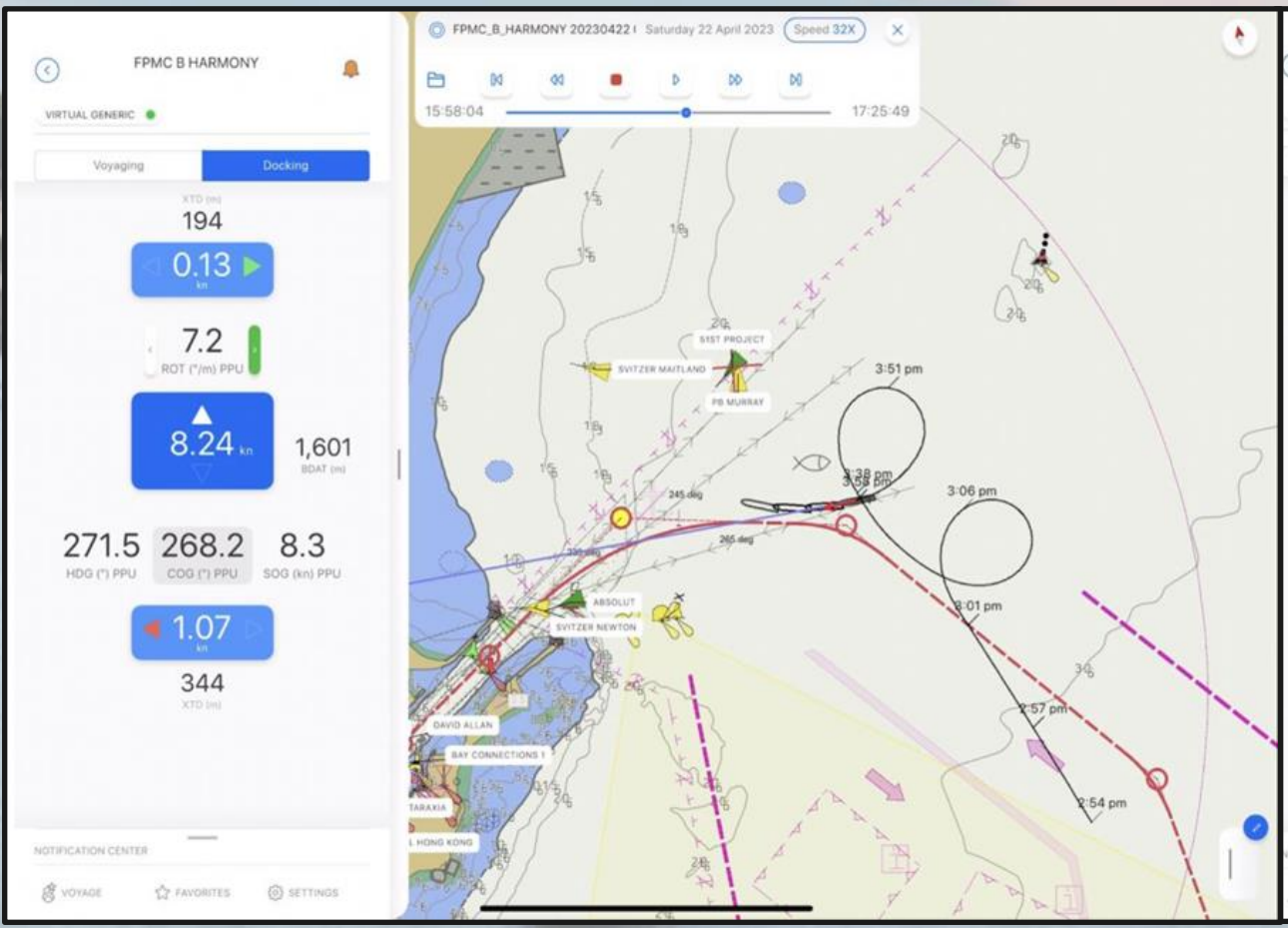
As we transition to a more sustainable future, the maritime industry must find solutions that balance environmental responsibility and navigational safety.

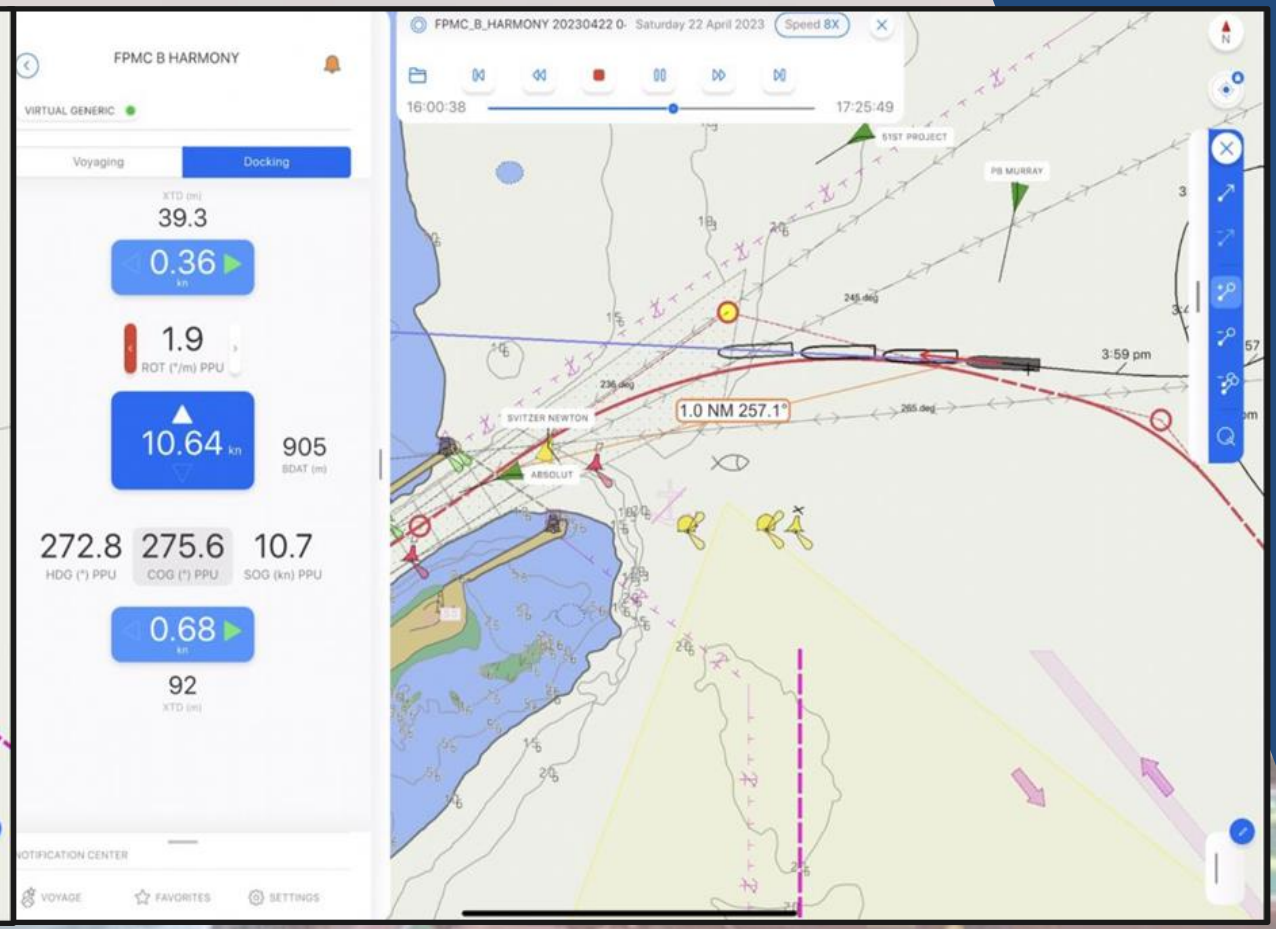
This article is dedicated in honour of our good friend and colleague Captain Sangmin Goag who presented on EEXI and Engine Power Limiters at the AMPI Asia-Pacific 2023 Conference in Perth.

We have been informed that Captain Sangmin sadly passed away in February 2024, we have expressed our collective condolences to his family through the President of the Korean Marine Pilots Association.



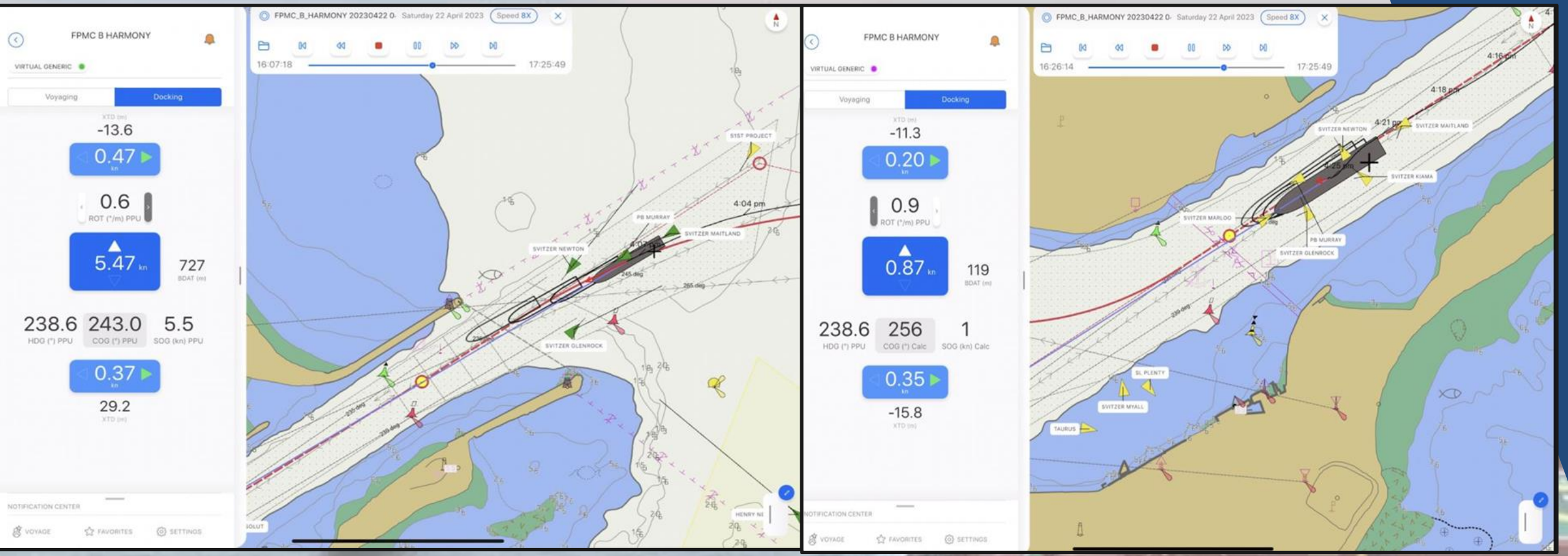
Newcastle Incident – 22 April 2023 (1)





Cape size bulk carrier. Loa 295 x 46m. Draft 8.9m. Built 2012

Newcastle Incident – 22 April 2023 (2)



4/2024 Ethical Use of Data

04-2024 Ethical Use of Pilotage Performance Data

1. Preamble

"The use of historical navigation data recorded by ports is an increasingly widespread practice amongst the government bodies responsible for safety investigations around the world".

ANTONIO DI LIETO – "DILIGENT PILOTAGE – LESSONS LEARNED FROM THE JOLLY NERO" 2022

"Whatever way pilotage is conducted; it has to be able to withstand the scrutiny that is possible post occurrence with today's technology".

RAVI NIJJER – AMPI PILOTAGE & PORT LOGISTICS CONFERENCE 2019

1.1. It is recognised that in the age of digital information and big data, a vast amount of pilotage related data and information is available, that can be readily accessed and used for a wide range of purposes.

1.2. Data sources include those obtained from AIS, PPU, VDR, VTS, VHF, video and audio recordings and any other data sources associated with the planning, monitoring, and execution of acts of pilotage.

1.3. Pilotage performance data has the potential to provide valuable insight into pilotage operations and to assist in developing an organisations Pilotage Operations Quality Management System as well as aid in Training and Port Development.

1.4. Pilotage performance data when misused, also has the potential to instil fear, shame and mistrust within a pilotage group and become a source of psychosocial stress within a pilotage organisation.

1.5. AMPI promotes the concept of **Just Culture,** a concept related to systems thinking that emphasises that mistakes are generally a product of faulty organisational systems, procedures, and management culture, rather than solely brought about by the person or persons directly involved. In a **Just Culture**, after an incident, the question asked is, *"What went wrong?"* rather than *"Who caused the problem?"*

1.6. The ethical use of pilotage performance data means that such data must be carefully managed and within the framework of a **Just Culture** to ensure the full benefit of data analysis is achieved.

1.7. The aim of this paper is to provide guidance on how pilotage performance data can be used ethically and in a psychologically safe manner to enhance operational safety and efficiency as well as contribute to the protection of the marine environment for all acts of pilotage.

2. Position

2.1. This position paper is for the attention of pilotage regulators, port authorities, pilotage service providers and marine pilots.

2.2. The AMPI position on the ethical use of data is that parties involved in the provision, management or regulation of marine pilotage should develop policies which describe the use of pilotage performance data, providing a balance between the benefits of safety and accountability. The policy should be developed within the framework of a **Just Culture** and where judgements are made in context and with due regard for the circumstances and conditions at the time.

2.3. Policies should be jointly developed by pilots, pilotage service providers, port authorities and/ or regulators so that the perspectives and desired outcomes of all parties are considered and balanced.

2.4. Such policies should be drafted with the following in mind:

i. Policies should be in accordance with local legislation and regulations and with regards to confidentiality and privacy requirements.

ii. Policies should contain clear procedures for the means of analysing and reviewing the data. The use of data analysis tools must be underpinned by a robust safety management system and a **Just Culture**.

iii. The objectives for using pilotage performance data should be clearly defined so that all parties understand the purpose of the data collection.

iv. Performance criteria should be established by senior marine pilots and other stakeholders, based on historical performance of pilotage in the port. Performance criteria shall clearly define limits, safety margins and no-go areas that are jointly agreed and clearly communicated to all parties to the data use policy.

v. Review processes should be conducted in context, without undue reliance on the benefit of hindsight and with due regard for the circumstances and conditions present at the time the data was collected.

vi. Where reviews of pilotage performance data are carried out, these should include contributions by the pilots involved in generating the data (or their peers as nominated by the pilotage service provider) as well as other appropriate stakeholders, to reach agreed safety outcomes and improvements.

vii. Where voice data is collected, review of such data should be for the purpose of incident investigation only. Where otherwise required, voice data recordings should only be reviewed with the express permission of the person(s) recorded and in accordance with local or federal legislation.

viii. Employment policies requiring pilots to waive their right to refuse the use of voice data for anything other than incident investigation are considered unethical.

ix. Policies should contain instructions on who may access pilotage performance data and to what extent. As far as possible, data used for trend analysis should be anonymised so that no individual pilot may be identified by the data.

2.5. It is recommended that organisations establish a Data Use Memorandum of Understanding (see Appendix 1.). Where such relationships exist, the MOU is to be made between the pilots and the organisation/ authority/ regulator.

1/2023 Alternative Training Pathways

1-2023 Alternative Training Pathways for Marine Pilotage

1 Preamble

1.1 As a professional institute, the Australasian Marine Pilot Institute (AMPI) has a legitimate interest in ensuring that appropriate standards in marine pilotage exist throughout Australia.

1.2 Presently, pilot licensing in Australia is inconsistent between jurisdictions, with Commonwealth and State regulators and in some cases individual port authorities requiring differing standards, qualifications and experience levels.

1.3 Marine Pilotage licenses are issued in accordance with state legislation; where the current prerequisites of a STCW II/2 Master Unlimited Certificate of Competency or equivalent are a requirement in all states.

1.4 AMPI members have observed a reduction in appropriately qualified Australian applicants for Trainee Marine Pilot vacancies. This observation has been confirmed through statistics provided by the Australian Maritime Safety Authority which show a continuous decline in the issue of STCW II/2 Master Unlimited Certificates of Competency (CoC).[1]

1.5 There is an existing pool of Australian mariners with extensive sea time and experience who do not hold a STCW II/2 Master Unlimited CoC who have the potential to become successful marine pilot trainees. For example, RAN navigators, Master 3000GT CoC holders & Chief Mate Unlimited CoC holders. Given sufficient supplementary training and experience, these mariners could become a valuable source of trainee pilots in port and coastal pilotage jurisdictions.

1.6 In November 2008 the National Marine Safety Committee published "*Guidelines for Marine Pilotage Standards in Australia. Edition 2 -2008*"[2]. In November 2010 the Australian Transport Council published "*National Standard; Competencies for Trainee Marine Pilots*"[3]. AMPI proposes a review of this document. In June 2016 Ports Australia commissioned a report by Thompson Clarke titled "*Pilot Training Discussion Paper*"[4].

1.7 AMPI established the Pilot Training Advisory Board (PTAB) on 15 November 2005 to engage regulators, industry stakeholders and pilotage service providers for a national approach to marine pilot training and licensing.

1.8 Singapore, the United Kingdom and Germany have adopted successful alternative pilot training programs. Ports in Queensland and Western Australia, have already successfully implemented Alternative Pathways for particular individuals by bridging the knowledge and experience gaps through targeted training.

[1] AMSA Manager Seafarer Certification and Coastal Pilotage, PTAB Meeting 25th November 2023
[2] Guidelines for Marine Pilotage Standards in Australia. Edition 2 -2008".
[3] National Standard; Competencies for Trainee Marine Pilots
[4] Pilot Training Discussion Paper, Thompson Clarke & Ports Australia, June 2016

2 Aim

2.1 AMPI is seeking a consistent and unified approach to pilotage standards nationally, that encourages regulators and pilotage service providers to uphold acceptable safety standards, independent of commercial pressures that may have the potential to compromise the pre-eminence of shipping safety in decision-making.

3 Position

3.1 Marine Pilots perform both a statutory and critical leadership role onboard a ship, equivalent to that of the Master. AMPI therefore maintains that it is reasonable to expect that the Marine Pilot has, as a minimum, competencies equivalent to attaining a license to operate the largest ship that they would be expected to pilot.

3.2 State regulators and industry stakeholders would ideally collaborate to develop an Alternative Pathway training program for Marine Pilotage that enables experienced mariners with qualifications other than STCW II/2 Master Unlimited to be trained to an equivalent standard.

3.3 The alternative pilot training program offers recognition of prior learning acquired through formal, non-formal and informal learning.

3.4 The academic training should be based on the existing qualification framework for the established STCW Officer of the Watch (OOW), Chief Officer and Master Unlimited programmes.

3.5 It is acknowledged that there are a wide variety of vocational skills involved in achieving a Master Unlimited CoC including leadership, shipboard knowledge, seamanship and ship-handling that contribute to a well-rounded trainee marine pilot applicant. The training programme would need to identify skill and experience gaps and provide training deemed necessary, which may need to include additional focused sea time on ocean-going merchant vessels as part of the syllabus. Industry partnerships would be needed to facilitate this.

3.6 The Australian Qualifications Framework identifies the Master Unlimited qualification as an AQF Level 6. This identifies that "*Graduates at this level will have broad knowledge and skills for paraprofessional/highly skilled work and/or further learning. Graduates at this level will apply knowledge and skills to demonstrate autonomy, judgement and defined responsibility; in contexts that are subject to change and within broad parameters to provide specialist advice and functions*".[5] It is to be expected that qualification mapping will result in equivalence to AQF Level 6. There should also be due regard to the variances between AQF and STCW qualifications and training.

[5] https://www.aqf.edu.au/framework/aqf-levels

3.7 Recommended entry routes may include STCW Master 3000gt, STCW Officer of the Watch and Chief Officer Unlimited and equivalent Royal Australian Navy qualifications. Alternative large vessel domestic licenses may be considered where an appropriate training program can be applied, with due regard to the large academic and practical training gaps that may need to be bridged. It should be noted that mapping small domestic licences into suitable equivalence for entry into a Marine Pilot Traineeship would result in a protracted and financially burdensome training program.

3.8 There should be a strong focus on the training and assessment of non-technical skills including Human Factors through established Bridge Resource Management and similar training.

3.9 Despite screening and psychological testing in Marine Pilot recruitment, there continues to be a failure rate during initial licensing. The program should provide exit points for qualifications in Port Operations and Management roles including Harbour Master qualifications. This approach has been adopted in the UK training program.

3.10 The Australasian Marine Pilots Institute opposes ab initio training into Trainee Marine Pilot roles. Marine Pilotage is a complex profession that requires extensive pre-existing maritime industry experience.

4. Conclusion

4.1 Whilst the Australasian Marine Pilots Institute maintains STCW II/2 Master Unlimited Certificate of Competency as the preferred entry route into Marine Pilotage, it supports the development of an alternative training program for Marine Pilotage candidates who demonstrate sufficient and appropriate maritime industry experience.

5. Further information

5.1 The Pilot Training Advisory Board (PTAB), representing industry stakeholders, has advanced its thinking on the details of the Alternative Pathway and will keep the industry informed of its progress.

5.2 We welcome industry stakeholders and regulators to submit an expression of interest to join the PTAB by emailing admin@ampi.org.au

PILOT TRANSFER ARRANGEMENTS

AMENDMENTS TO SOLAS V/23

1.2.2 The management objectives of the ISPO are:

• To assess risk to property, the environment, ships, personnel and operations, and to establish appropriate safeguards;

To continuously improve safety management practices within maritime pilot organizations

7.6 Embarking and Disembarking

7.6.1 The pilot organization establishes and maintains procedures for the safe embarking and disembarking of maritime pilots, in accordance with local, national and international regulations and recommendations.

7.6.2 The pilot organization establishes procedures for the reporting of any vessel equipped with a non-compliant boarding arrangement.

Australia

- Woodside Terminal updated terminal manual to require pilot ladder replacement at not more 30 month intervals.
- AAL Dampier Pilot Fell 5-6 m after both man ropes parted.
- Growing number of ports have issued local marine notices with requirements exceeding SOLAS.

Updates to SOLAS v23

- The committee working on this in July at IMO.
- IMPA played a leading role with Marine Pilots on the Delegations of Australia, Brazil, France, Italy, Republic of Korea, UK and USA.
- Between meeting in 2023 and 2024 a correspondence group considered documents and inputs members.
- Technical details taken out of the SOLAS reg and put into a **MANDATORY** performance standard.
- Consequential amendments to Pilot Ladder Poster Considered

Updates to SOLAS v23

- Mandatory performance standard. Split into 5 parts covering:
- Design, Manufacture and Construction
- Rigging
- Installation of Pilot Ladder Winch Reels
- Operational Readiness Onboard Inspection and Maintenance
- Familiarisation Onboard
- Approval

PART F– APPROVAL 34 Pilot transfer arrangements installed in accordance with regulation V/23.3 shall be approved by the Administration as complying with these performance standards before being put into service for the first time and after repair, alteration or modification to the arrangements provider for in paragraphs 5 to 8 and paragraph 10 of part A, or part C, of these performance standards.

35 Pilot transfer arrangements installed in accordance with regulation V/23.4 and .5 shall be approved by the Administration as complying with these performance standards after alteration or modification, if any, or repair, to the arrangements provided for in paragraphs 5 to 8 and paragraph 10 of part A, or part C, of these performance standards.

36 A pilot ladder, including the means of securing the pilot ladder at intermediate lengths, and manropes provided to meet the requirements of these performance standards shall be type-approved by the Administration as complying with these performance standards.

37 A manufacturer quality control system shall be required and shall be audited by a competent authority to ensure continuous compliance with the type approval conditions. Alternatively, the Administration may use final product verification procedures where compliance with the type approval certificate is verified by a competent authority before the product is installed on board ships.

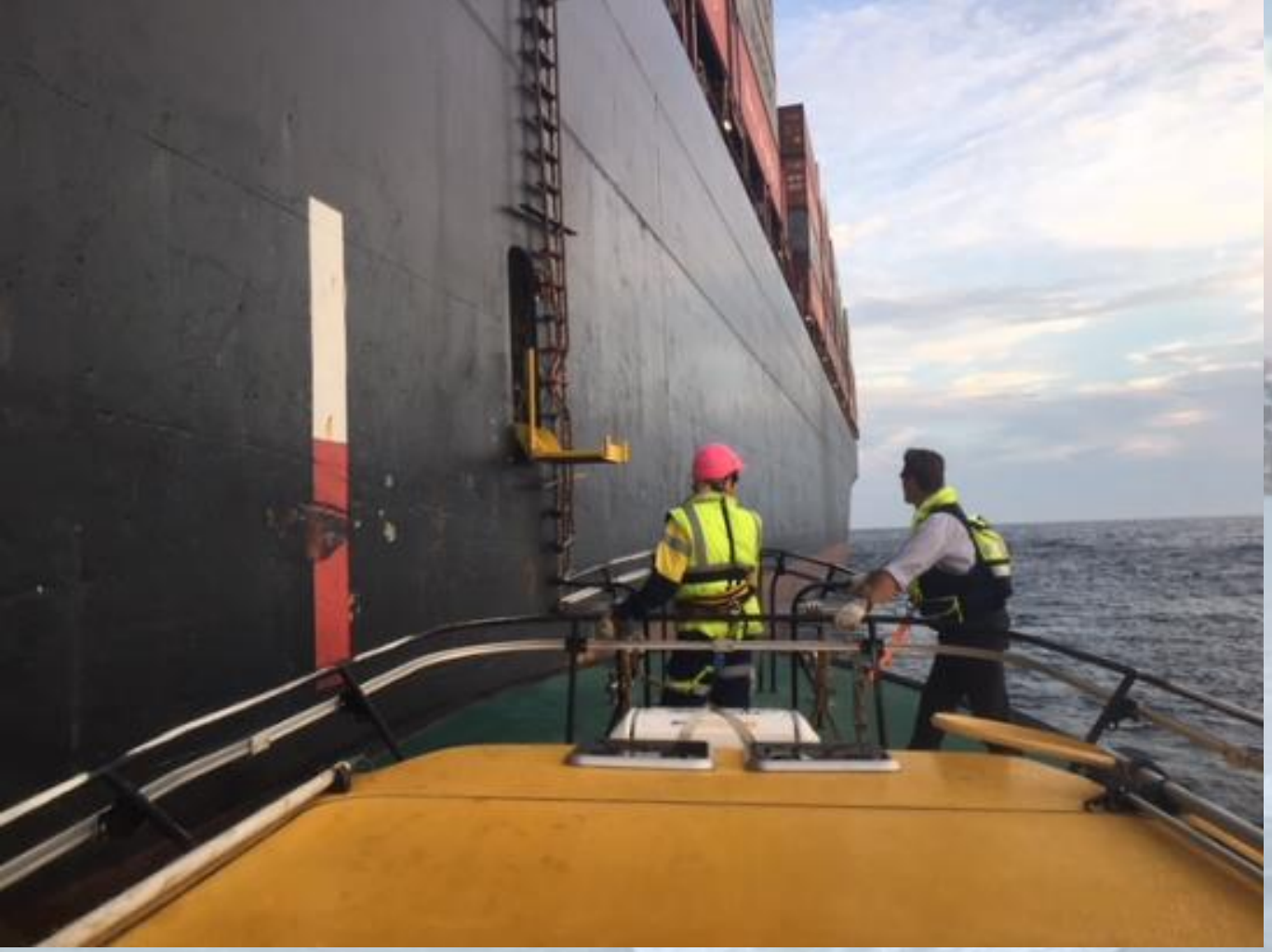
Updates to SOLAS v23

- Removal of “Grandfathering” all ships will need to comply by 2030.
- Early Implementation.
- Clear remove from service date now applies to pilot ladders and man ropes.
- Enhanced certification requirements for pilot ladders
- Clearer requirements for onboard Inspection
- Clearer requirements for onboard familiarisation with Pilot Boarding Arrangements.
- Improved Trapdoor arrangements

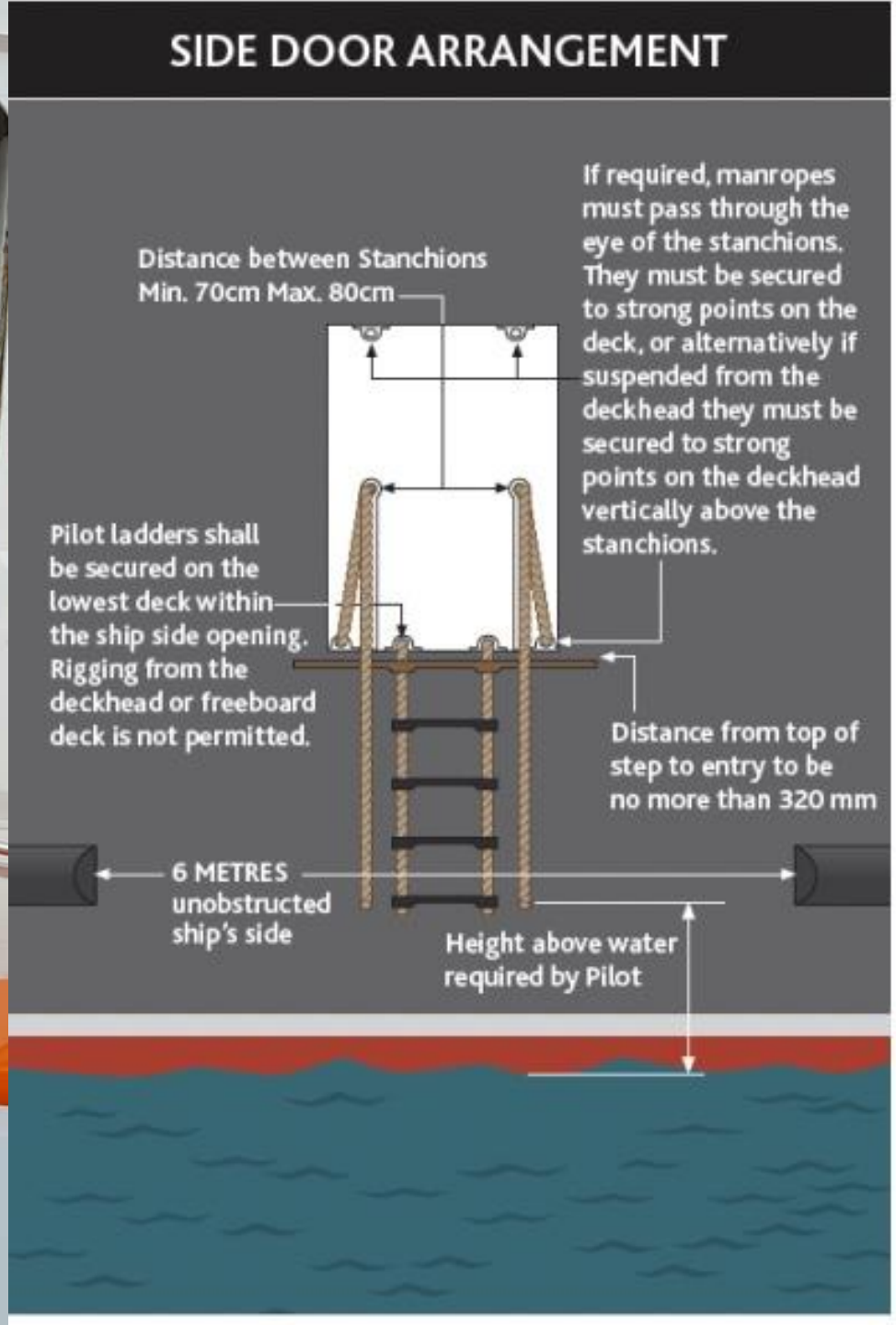
Updates to SOLAS v23

- Pilot ladders and man ropes will be required to be replaced 3 years from date of manufacture or within 30 months of being put into service which ever is earlier.
- We had increased diameter for winch drums to avoid compression damage however this was unsuccessful.

Ships will now need to supply compliant arrangements at all conditions of seagoing draft.



To comply with new performance standard the ladder would need to be aft of the platform and the platform at least 5m above the sea.

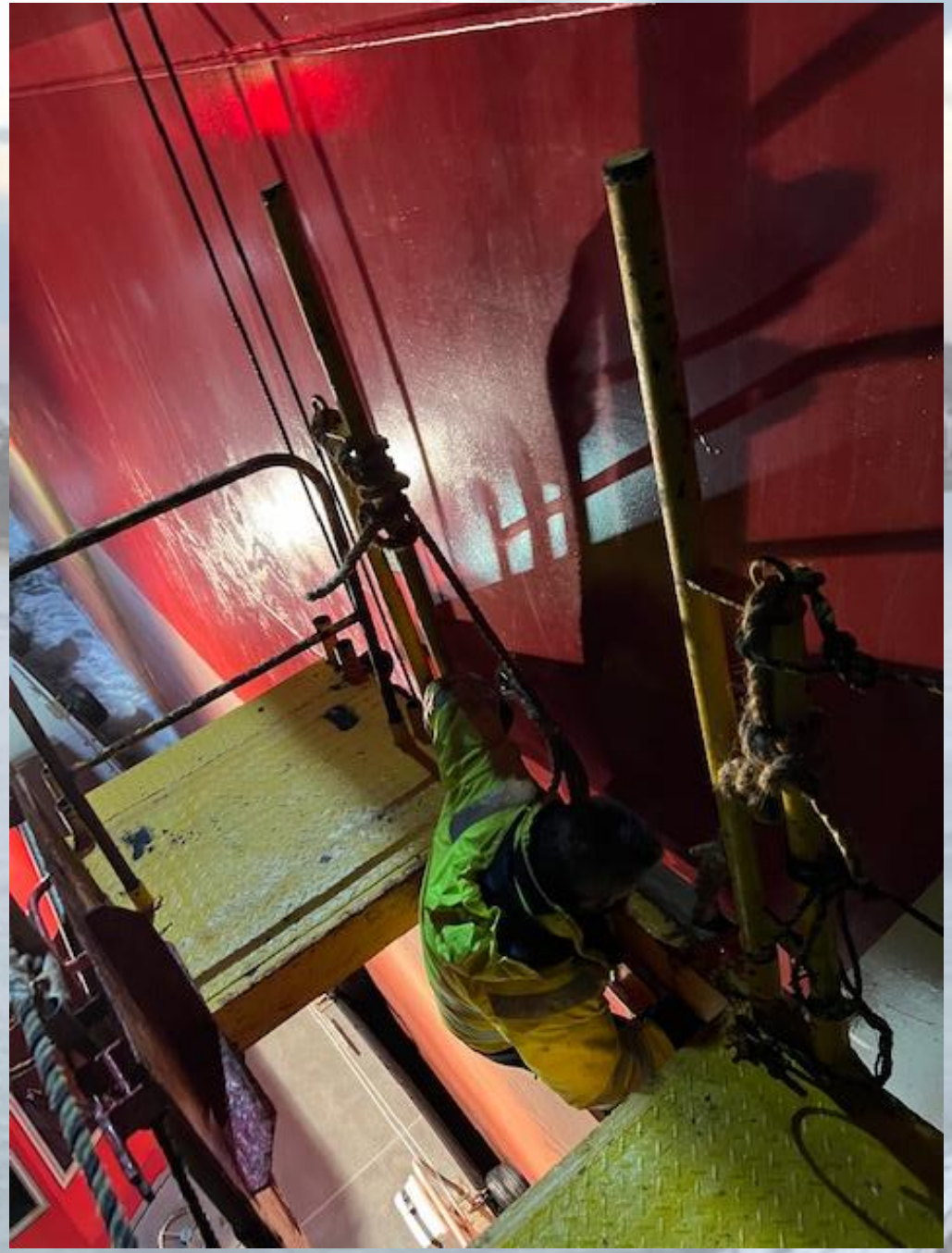


Ladders must be secured to the deck of the vessel with stanchions and man ropes available

NON COMPLIANT

Embarkation Platform

This arrangement does not comply with Solas V/23 .



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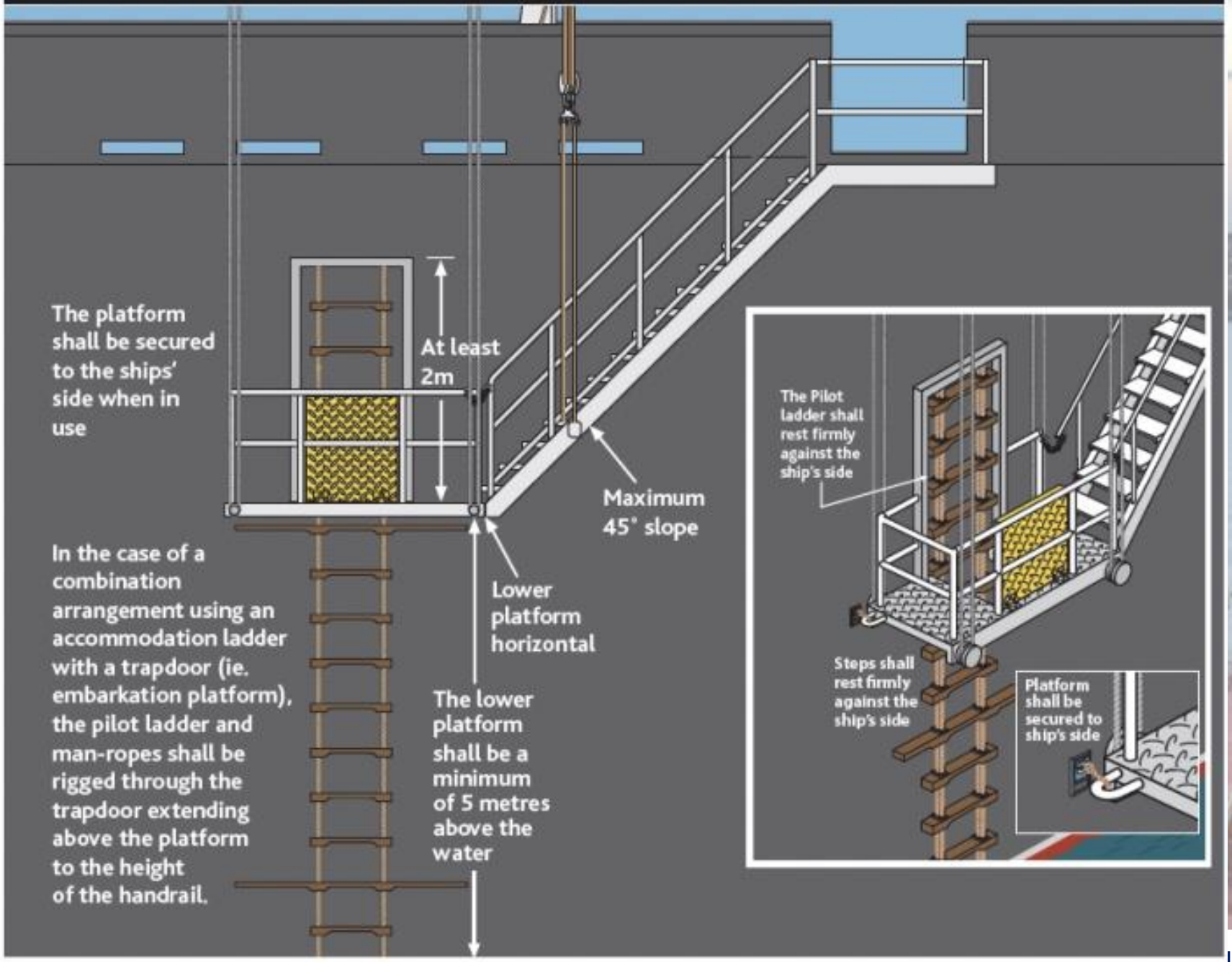
ACCOMMODATION LADDER (TRAP DOOR ARRANGEMENT)



Self certification of pilot ladders will no longer be allowed. The administration will be required to approve.

Steps need to remain horizontal at all times.

Continuous Professional Development

Continuous Professional Development

- Overview
- Workshops
- System Updates

6.3.6 The pilot organization establishes proficiency training not only to keep abreast of future changes
due to technological developments, but also to update the knowledge of maritime pilots. To
ensure the continued proficiency of maritime pilots, the maritime pilot organization sees to it:
• That all maritime pilots under its management continue to maintain their required level of
competency in compliance with the organization's ISPO management system;
• That relevant programs in compliance with rules and regulations support the updating of
knowledge and skills of maritime pilots;
• That a maximum absence period is determined per designated area in which a maritime pilot
performs pilotage services;
• That refresher programs must be in place in the event that the absence has exceeded the
maximum period.
6.3.7 The maritime pilot organization establishes and maintains a system for the administration and/or
registration of the maritime pilots which includes at least the following information:
• General information;
• Records of pilotage service (experience and qualifications);
• Training records;

Overview


AUSTRALASIAN
MARINE PILOTS INSTITUTE
Continuing Professional Development
Program Manual
(A Training Standard for Australian Marine Pilots)
Version 6
Queensland Government
AUSTRALASIAN
MARINE PILOTS INSTITUTE
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30-Jun-2017
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12-Dec-2019
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08-Dec-2021
5
Approved
Amendments to ensure integrity of items submitted, new items added.
16-Jul-2024
6
Approved
Amendments to reflect NZMPA involvement, modification of item list and changes to data sovereignty provision.
Page | 2 of 49 Table of Contents
Version: 6 (01-Jul-2024)
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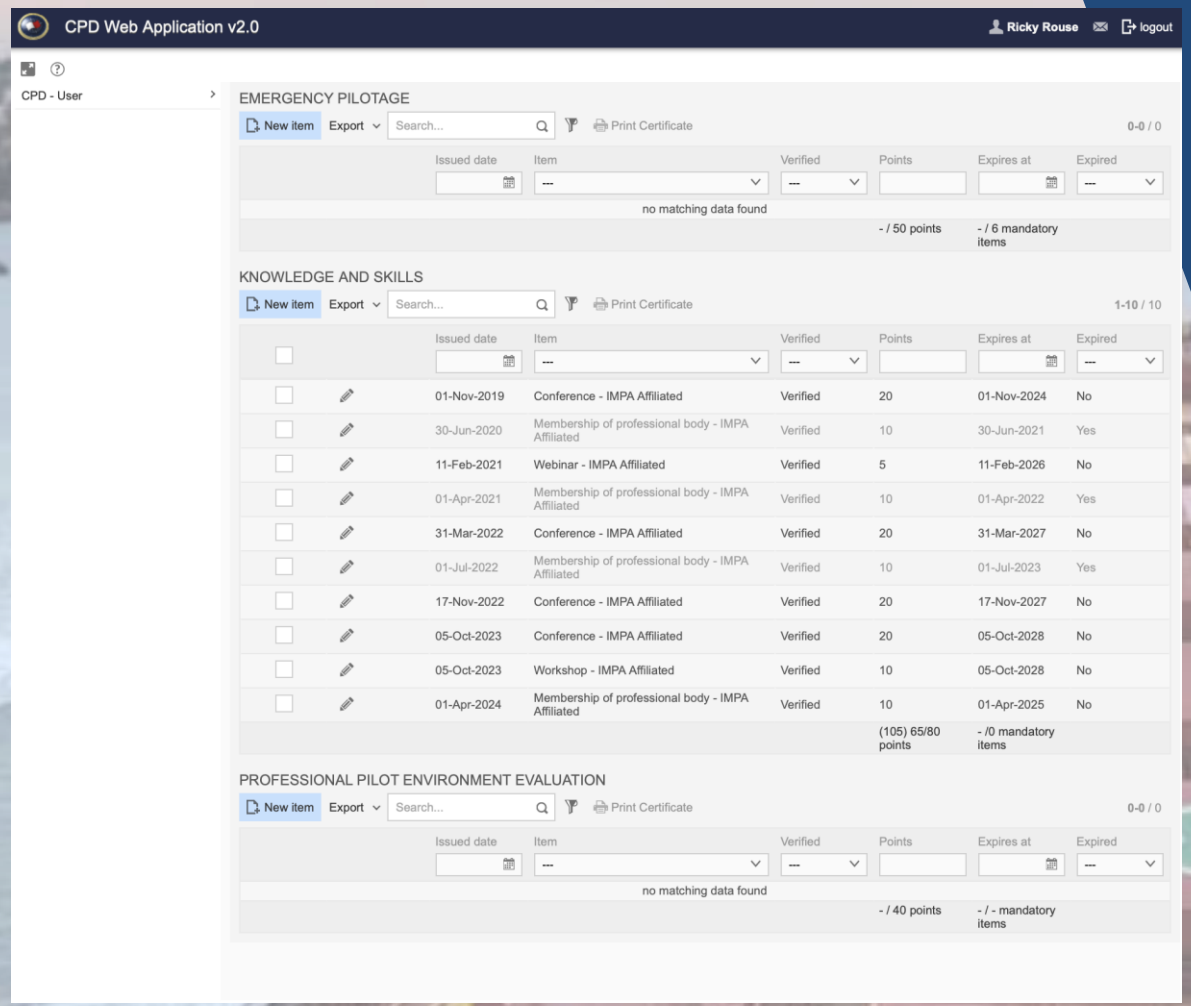
Continuing Professional Development Program Manual


CPD Web Application v2.0
Ricky Rouse
logout
CPD - User
EMERGENCY PILOTAGE
New item
Export
Search...
Print Certificate
0-0 / 0
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Item
Verified
Points
Expires at
Expired
no matching data found
- / 50 points
- / 6 mandatory items
KNOWLEDGE AND SKILLS
New item
Export
Search...
Print Certificate
1-10 / 10
Issued date
Item
Verified
Points
Expires at
Expired
01-Nov-2019 Conference - IMPA Affiliated Verified 20 01-Nov-2024 No
30-Jun-2020 Membership of professional body - IMPA Affiliated Verified 10 30-Jun-2021 Yes
11-Feb-2021 Webinar - IMPA Affiliated Verified 5 11-Feb-2026 No
01-Apr-2021 Membership of professional body - IMPA Affiliated Verified 10 01-Apr-2022 Yes
31-Mar-2022 Conference - IMPA Affiliated Verified 20 31-Mar-2027 No
01-Jul-2022 Membership of professional body - IMPA Affiliated Verified 10 01-Jul-2023 Yes
17-Nov-2022 Conference - IMPA Affiliated Verified 20 17-Nov-2027 No
05-Oct-2023 Conference - IMPA Affiliated Verified 20 05-Oct-2028 No
05-Oct-2023 Workshop - IMPA Affiliated Verified 10 05-Oct-2028 No
01-Apr-2024 Membership of professional body - IMPA Affiliated Verified 10 01-Apr-2025 No
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PROFESSIONAL PILOT ENVIRONMENT EVALUATION
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Export
Search...
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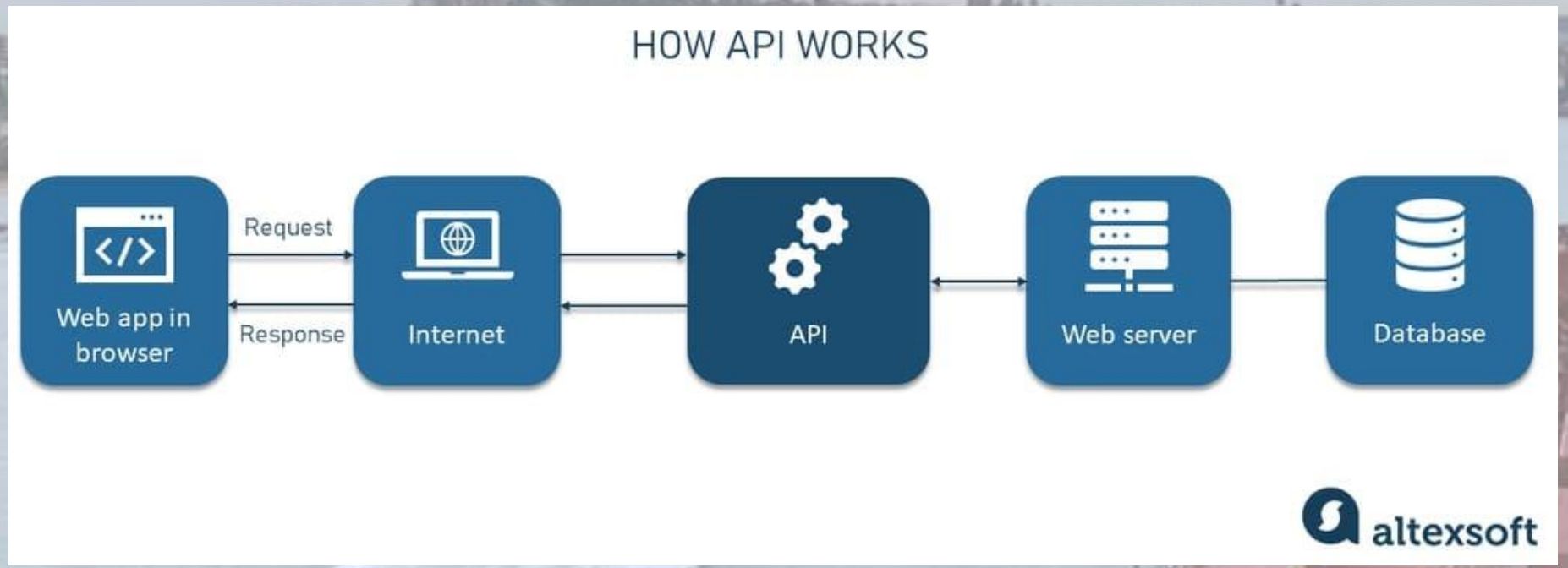
- / - mandatory items

APIs and Usability



Advanced Marine Pilot Training

Advanced Marine Pilots Training (AMPT)

Professional Development

Smartship's Advanced Marine Pilots Training (AMPT) is the result of two decades of professional development within the Australasian maritime industry. The course is designed for marine pilots, ship masters and senior deck officers, as well as managers of shipping companies and authorities.

The course aims to:

- update attendees on a range of topics in several areas of navigation and safety management
- enable attendees to have an informed opinion on professional matters
- address any issue of concern to marine pilotage.

The topics covered by Smartship instructors and industry experts include:

- the shift from 'Pilot Centred' to Systems approach
- the development and application of Pilotage Operations Safety Management system (POSMS)
- the legal aspects of pilotage
- the application of new technologies to both integrated navigation systems and Portable Pilot Units.

The course is approved by the Australian Maritime Safety Authority (AMSA) as an "approved pilotage training course" for the purposes of applying for a trainee coastal pilot license and for the purpose of coastal pilot license revalidation requirements in accordance with Marine Order 54 (Coastal Pilotage).

Port and Coastal Pilots holding an AMSA STCW78 or STCW95 certificate of competency who complete this course meet the current AMSA approved Revalidation Course requirements (Part A and B), which can include the Medical Care revalidation course components if the participant completes the Medical Care Refresher course facilitated by Smartship Australia.

The AMPT course does not include the GMDSS, Advanced Fire Fighting, Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats, Security Awareness Training.

AMSA-recognised Advanced Marine Pilots Training (AMPT) delivered by expert tutors using Australia's most advanced Marine Pilot training facilities.

AMC Search's Advanced Marine Pilot Training is delivered by Human Factors specialist **Associate Professor Ben Brooks** with support from current Marine Pilots. We have presentations from award-winning maritime experts including:

- Maritime Law specialist Captain John Kavanagh
- Professor Margareta Lutzhoft (on advances in autonomous shipping)
- Advanced Tug Management with Arie Nygh
- Organisational Resilience with Associate Professor Steve Curnin
- Presentations on Advanced PPU and Data Analytics

We also spend three half-days using Australia's most advanced Marine Pilot training facilities at the Centre for Maritime Simulations at the Australian Maritime College.

WHO SHOULD PARTICIPATE?

This course is designed for practicing marine pilots. Other candidates may be accepted on a case-by-case basis and will be assessed via a review of relevant qualifications and experience.

TOPICS:

- Individual Pilot Performance, Non-Technical Skills and Applied Biometrics
- Legal Issues in Marine Pilotage
- Managing Fatigue, Stress, Neurology and Maintaining Cognitive Health
- Practical team strategies including debriefing principles
- Advanced Tug Management
- Advanced PPU usage and data analytics
- Crisis management and organisational resilience
- The senior pilot's role in a Highly Reliable Organisations

ISPO Conference | Melbourne | 9-10th Oct 2024

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Questions & Answers